

**WHAT IS CLAIMED IS:**

1. A system for recharging a battery comprising:
  - a fast charging current switch for coupling a fast charging current to a battery in response to the battery voltage being at or above a threshold level; and
  - a bypass element for coupling a trickle charging current to the battery.
2. The system of claim 1 wherein the bypass element is a resistor coupled between a fast charging current source and the battery to provide a trickle charging current to the battery.
3. The system of claim 2 wherein the resistor is in the range of 100 to 2000 ohms.
4. The system of claim 1 wherein the fast charging current switch includes a comparator for comparing the battery voltage to the threshold level.
5. The system of claim 4 wherein the threshold level is approximately 950 mV/cell.

6. The system of claim 1 wherein the fast charging current switch includes a transistor and the output of the comparator is coupled to the transistor to enable the coupling of the fast charging current to the battery in response to the battery voltage being at or above the threshold level.
7. The system of claim 6 wherein the bypass element is coupled across the transistor of the fast charging current switch so that the trickle charge is conducted by the bypass element to the battery in response to the transistor of the fast charging current switch not being enabled.
8. The system of claim 1 wherein the fast charging current switch includes a first transistor coupled between a second transistor and electrical ground, the first transistor enabling the second transistor to conduct a fast charging current to the battery in response to the battery voltage being at or above the threshold level.
9. The system of claim 1 wherein the fast charging current switch includes a zener diode coupled between the battery and a transistor, the transistor also being coupled between the battery and electrical ground so that a battery voltage exceeding the breakdown voltage of the zener diode enables the transistor to couple the battery to ground

and couple the fast charging current to electrical ground through the battery.

10. The system of claim 9 wherein the bypass element includes a resistor coupled between the battery and electrical ground and being coupled across the transistor so that the fast charging current is coupled to electrical ground through the battery and resistor to provide a trickle charge to the battery.

11. A method for recharging a battery comprising:

coupling a trickle charging current to the battery; and  
coupling a fast charging current to a battery in response to the  
battery voltage being at or above a threshold level.

12. The method of claim 11 further comprising:

bypassing a fast current charging switch with a trickle charging  
current so that the battery is recharged at a trickle rate in response to the  
battery voltage being equal to or greater than the threshold level.

13. The method of claim 12 further comprising:

limiting the fast charging current to generate the trickle charging  
current.

14. The method of claim 11 further comprising:

comparing the battery voltage to the threshold level.

15. The method of claim 14, the comparison further comprising:

applying the battery voltage to the cathode of a zener diode.

16. The method of claim 11 further comprising:

enabling a transistor to couple the fast charging current to the battery in response to the battery voltage being at or above the threshold level.

17. The method of claim 16, the trickle charging current coupling further comprising:

bypassing the transistor with a trickle charging current in response to the transistor not being enabled to provide a fast charging current to the battery.

18. The method of claim 11 further comprising:

detecting with a zener diode whether the battery voltage is at or above the threshold level.

19. The method of claim 11 further comprising:

enabling a transistor to couple the fast charging current to electrical ground through the battery in response to the zener diode detecting that the battery voltage is at or above the threshold level.

20. The method of claim 19 further comprising:

bypassing the transistor with a resistor so that the trickle charging current is provided to electrical ground through the battery in response to the battery voltage being less than the breakdown voltage of the zener diode.